

WHAT IS CLAIMED IS:

1. A lens apparatus interchangeably mounted on a plurality of image pickup apparatuses having different forms of image pickup devices, comprising:

5 an image pickup optical unit;

a light quantity adjustment unit inserted in an optical axis of said image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

10 a controller for controlling a change of the aperture diameter by said light quantity adjustment unit,

wherein said controller changes a set value of said light quantity adjustment unit for a minimum

15 aperture diameter of the aperture diameter in accordance with the form of the image pickup device of the image pickup apparatus on which the lens apparatus is mounted.

20 2. An apparatus according to claim 1, wherein the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

25 3. An apparatus according to claim 1, wherein the form of the image pickup device includes at least one information out of the number of pixels of the image

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pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.

4. An optical apparatus including at least any  
5 one of a plurality of image pickup apparatuses having different forms of image pickup devices, and a lens apparatus interchangeably mounted on the one image pickup apparatus, the one image pickup apparatus and the lens apparatus having contacts for performing  
10 transmission between the one image pickup apparatus and the lens apparatus, the optical apparatus comprising:

an image pickup optical unit which is included in the lens apparatus;

a light quantity adjustment unit inserted in an  
15 optical path of the image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

a controller for controlling a change of the aperture diameter by said light quantity adjustment  
20 unit, said controller obtaining information concerning the form of the image pickup device from the image pickup apparatus by transmission via the contacts,

wherein said controller changes a set value of said light quantity adjustment unit for a minimum  
25 aperture diameter of the aperture diameter in accordance with the information concerning the form of the image pickup device of the image pickup apparatus

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that is obtained by the transmission.

5. An apparatus according to claim 4, wherein the information concerning the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

6. An apparatus according to claim 4, wherein the information concerning the form of the image pickup device includes at least one information out of the number of pixels of the image pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.

7. An optical apparatus including any one of a plurality of image pickup units which include image pickup devices and have different forms of the image pickup devices, and a main body unit which includes an image pickup optical unit on which the one image pickup unit is mounted to form an image on the image pickup device, and a memory part for storing an image pickup signal from the image pickup unit, the one image pickup unit and the main body unit having contacts for performing transmission between the one image pickup unit and the main body unit, the optical apparatus comprising:

a light quantity adjustment unit inserted in an

a controller for controlling a change of the  
5 aperture diameter by said light quantity adjustment  
unit, said controller obtaining information concerning  
the form of the image pickup device from the image  
pickup unit by transmission via the contacts,

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9. An apparatus according to claim 7, wherein the information concerning the form of the image pickup device includes at least one information out of the number of pixels of the image pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.

10. A lens apparatus interchangeably mounted on a plurality of image pickup apparatuses which have different forms of image pickup devices and a plurality of image pickup modes, comprising:

5           an image pickup optical unit;

          a light quantity adjustment unit inserted in an optical axis of said image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

10           a controller for controlling a change of the aperture diameter by said light quantity adjustment unit,

          wherein said controller changes a set value of said light quantity adjustment unit for a minimum  
15           aperture diameter of the aperture diameter in accordance with the form of the image pickup device in a preset image pickup mode out of the plurality of image pickup modes of the image pickup apparatus on which the lens apparatus is mounted.

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11. An apparatus according to claim 10, wherein the preset image pickup mode includes an automatic exposure adjustment image pickup mode.

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12. An apparatus according to claim 10, wherein information concerning the form of the image pickup device includes information concerning a pixel pitch of

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each pixel of the image pickup device.

13. An apparatus according to claim 10, wherein  
information concerning the form of the image pickup  
5 device includes at least one information out of the  
number of pixels of the image pickup device, a pixel  
pitch of each pixel, and an aperture value set in  
accordance with the pixel pitch.

10 14. A lens apparatus interchangeably mounted on a  
plurality of image pickup apparatuses which have  
different forms of image pickup devices and a plurality  
of image pickup modes, comprising:

an image pickup optical unit;

15 a light quantity adjustment unit inserted in an  
optical axis of said image pickup optical unit, said  
light quantity adjustment unit changing an aperture  
diameter to change a light quantity; and

20 a controller for controlling a change of the  
aperture diameter by said light quantity adjustment  
unit,

wherein said controller changes a set value of  
said light quantity adjustment unit for a minimum  
aperture diameter of the aperture diameter in  
25 accordance with the form of the image pickup device of  
the image pickup apparatus on which the lens apparatus  
is mounted, and

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said controller inhibits setting an aperture value of which an aperture diameter becomes smaller than the changed set value of the minimum aperture diameter in an aperture priority image pickup mode out of the plurality of image pickup modes of the image pickup apparatus.

15. An apparatus according to claim 14, wherein the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

16. An apparatus according to claim 14, wherein the form of the image pickup device includes at least one information out of the number of pixels of the image pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.

17. A lens apparatus interchangeably mounted on a plurality of image pickup apparatuses which have different forms of image pickup devices and a plurality of image pickup modes, comprising:

an image pickup optical unit;  
a light quantity adjustment unit inserted in an optical axis of said image pickup optical unit, said light quantity adjustment unit changing an aperture

diameter to change a light quantity; and

a controller for controlling a change of the aperture diameter by said light quantity adjustment unit,

5            wherein said controller changes a set value of said light quantity adjustment unit for a minimum aperture diameter of the aperture diameter in accordance with the form of the image pickup device of the image pickup apparatus on which the lens apparatus  
10 is mounted, and

            said controller issues a warning from the image pickup apparatus when an aperture value or shutter speed with which an aperture diameter becomes smaller than the changed set value of the minimum aperture  
15 diameter is set in an image pickup mode of arbitrarily changing the aperture value or shutter speed out of the plurality of image pickup modes of the image pickup apparatus.

20           18. An apparatus according to claim 17, wherein the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

25           19. An apparatus according to claim 17, wherein the form of the image pickup device includes at least one information out of the number of pixels of the

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image pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.

5           20. An optical apparatus including at least any one of a plurality of image pickup apparatuses which have different forms of image pickup devices and a plurality of image pickup modes, and a lens apparatus interchangeably mounted on the one image pickup  
10           apparatus, the one image pickup apparatus and the lens apparatus having contacts for performing transmission between the one image pickup apparatus and the lens apparatus, the optical apparatus comprising:

15                 an image pickup optical unit which is included in the lens apparatus;

20                 a light quantity adjustment unit inserted in an optical path of the image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

25                 a controller for controlling a change of the aperture diameter by said light quantity adjustment unit, said controller obtaining information concerning the form of the image pickup device and information concerning the image pickup mode from the image pickup apparatus by transmission via the contacts,

                  wherein said controller changes a set value of said light quantity adjustment unit for a minimum

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aperture diameter of the aperture diameter in  
accordance with the information concerning the form of  
the image pickup device of the image pickup apparatus  
that is obtained by the transmission when the

- 5 information concerning the image pickup mode obtained  
by the transmission represents a preset image pickup  
mode out of the plurality of image pickup modes.

- 10 21. An apparatus according to claim 20, wherein  
the preset image pickup mode includes an automatic  
exposure adjustment image pickup mode.

- 15 22. An apparatus according to claim 20, wherein  
the information concerning the form of the image pickup  
device includes information concerning a pixel pitch of  
each pixel of the image pickup device.

- 20 23. An apparatus according to claim 20, wherein  
the information concerning the form of the image pickup  
device includes at least one information out of the  
number of pixels of the image pickup device, a pixel  
pitch of each pixel, and an aperture value set in  
accordance with the pixel pitch.

- 25 24. An optical apparatus including any one of a  
plurality of image pickup units which include image  
pickup devices and have different forms of the image

pickup devices, and a main body unit which has a plurality of image pickup modes and includes an image pickup optical unit on which the one image pickup unit is mounted to form an image on the image pickup device, and a memory part for storing an image pickup signal from the image pickup unit, the one image pickup unit and the main body unit having contacts for performing transmission between the one image pickup unit and the main body unit, the optical apparatus comprising:

a light quantity adjustment unit inserted in an optical axis of the image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

a controller for controlling a change of the aperture diameter by said light quantity adjustment unit, said controller obtaining information concerning the form of the image pickup device and information concerning the image pickup mode from the image pickup unit by transmission via the contacts,

wherein said controller changes a set value of said light quantity adjustment unit for a minimum aperture diameter of the aperture diameter in accordance with the information concerning the form of the image pickup device of the image pickup unit that is obtained by the transmission when the information concerning the image pickup mode obtained by the transmission represents a preset image pickup mode out

of the plurality of image pickup modes.

25. An apparatus according to claim 24, wherein  
the preset image pickup mode includes an automatic  
5 exposure adjustment image pickup mode.

26. An apparatus according to claim 24, wherein  
the information concerning the form of the image pickup  
device includes information concerning a pixel pitch of  
10 each pixel of the image pickup device.

27. An apparatus according to claim 24, wherein  
the information concerning the form of the image pickup  
device includes at least one information out of the  
15 number of pixels of the image pickup device, a pixel  
pitch of each pixel, and an aperture value set in  
accordance with the pixel pitch.

28. An optical apparatus including at least any  
20 one of a plurality of image pickup apparatuses which  
have different forms of image pickup devices and a  
plurality of image pickup modes, and a lens apparatus  
interchangeably mounted on the one image pickup  
apparatus, the one image pickup apparatus and the lens  
25 apparatus having contacts for performing transmission  
between the one image pickup apparatus and the lens  
apparatus, the optical apparatus comprising:

an image pickup optical unit which is included in the lens apparatus;

5 a light quantity adjustment unit inserted in an optical path of the image pickup optical unit, said light quantity adjustment unit changing an aperture diameter to change a light quantity; and

10 a controller for controlling a change of the aperture diameter by said light quantity adjustment unit, said controller obtaining information concerning the form of the image pickup device and information concerning the image pickup mode from the image pickup apparatus by transmission via the contacts,

15 wherein said controller changes a set value of said light quantity adjustment unit for a minimum aperture diameter of the aperture diameter in accordance with the information concerning the form of the image pickup device of the image pickup apparatus that is obtained by the transmission, and

20 said controller inhibits setting an aperture value of which an aperture diameter becomes smaller than the changed set value of the minimum aperture diameter when the image pickup mode obtained by the transmission is an aperture priority image pickup mode out of the plurality of image pickup modes of the image pickup apparatus.

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29. An apparatus according to claim 28, wherein

the information concerning the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

5           30. An apparatus according to claim 28, wherein  
the information concerning the form of the image pickup  
device includes at least one information out of the  
number of pixels of the image pickup device, a pixel  
pitch of each pixel, and an aperture value set in  
10       accordance with the pixel pitch.

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31. An optical apparatus including at least any  
one of a plurality of image pickup apparatuses which  
have different forms of image pickup devices and a  
15       plurality of image pickup modes, and a lens apparatus  
interchangeably mounted on the one image pickup  
apparatus, the one image pickup apparatus and the lens  
apparatus having contacts for performing transmission  
between the one image pickup apparatus and the lens  
20       apparatus, the optical apparatus comprising:

an image pickup optical unit which is included in  
the lens apparatus;

a light quantity adjustment unit inserted in an  
optical path of the image pickup optical unit, said  
25       light quantity adjustment unit changing an aperture  
diameter to change a light quantity; and

a controller for controlling a change of the

aperture diameter by said light quantity adjustment unit, said controller obtaining information concerning the form of the image pickup device and information concerning the image pickup mode from the image pickup apparatus by transmission via the contacts,

wherein said controller changes a set value for a minimum aperture diameter of the aperture diameter by said light quantity adjustment unit in accordance with the information concerning the form of the image pickup device of the image pickup apparatus that is obtained by the transmission, and

said controller transmits information representing a warning to the image pickup apparatus via the contacts when the image pickup mode obtained by the transmission is an image pickup mode of arbitrarily changing an aperture value or shutter speed, and when the aperture value or shutter speed with which an aperture diameter becomes smaller than the changed set value of the minimum aperture diameter is set.

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32. An apparatus according to claim 31, wherein the image pickup apparatus includes a display, and causes the display to display a warning message when receiving the information representing the warning from the lens apparatus.

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33. An apparatus according to claim 31, wherein

the information concerning the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

5           34. An apparatus according to claim 31, wherein  
the information concerning the form of the image pickup  
device includes at least one information out of the  
number of pixels of the image pickup device, a pixel  
pitch of each pixel, and an aperture value set in  
10       accordance with the pixel pitch.

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35. An optical apparatus including any one of a  
plurality of image pickup units which include image  
pickup devices and have different forms of the image  
15       pickup devices, and a main body unit which has a  
plurality of image pickup modes and includes an image  
pickup optical unit on which the one image pickup unit  
is mounted to form an image on the image pickup device,  
and a memory part for storing an image pickup signal  
20       from the image pickup unit, the one image pickup unit  
and the main body unit having contacts for performing  
transmission between the one image pickup unit and the  
main body unit, the optical apparatus comprising:

25       a light quantity adjustment unit inserted in an  
optical axis of the image pickup optical unit, said  
light quantity adjustment unit changing an aperture  
diameter to change a light quantity; and



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a controller for controlling a change of the aperture diameter by said light quantity adjustment unit, said controller obtaining information concerning the form of the image pickup device and information concerning the image pickup mode from the image pickup unit by transmission via the contacts,

wherein said controller changes a set value of said light quantity adjustment unit for a minimum aperture diameter of the aperture diameter in accordance with the information concerning the form of the image pickup device of the image pickup unit that is obtained by the transmission, and

said controller inhibits setting an aperture value of which an aperture diameter becomes smaller than the changed set value of the minimum aperture diameter when the image pickup mode obtained by the transmission is an aperture priority image pickup mode out of the plurality of image pickup modes.

36. An apparatus according to claim 35, wherein the information concerning the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

37. An apparatus according to claim 35, wherein the information concerning the form of the image pickup device includes at least one information out of the

38. An optical apparatus including any one of a plurality of image pickup units which include image pickup devices and have different forms of the image pickup devices, and a main body unit which has a plurality of image pickup modes and includes an image pickup optical unit on which the one image pickup unit is mounted to form an image on the image pickup device, and a memory part for storing an image pickup signal from the image pickup unit, the one image pickup unit and the main body unit having contacts for performing transmission between the one image pickup unit and the main body unit, the optical apparatus comprising:

20 diameter to change a light quantity; and

25 concerning the image pickup mode from the image pickup  
unit by transmission via the contacts,

wherein said controller changes a set value of

said light quantity adjustment unit for a minimum aperture diameter of the aperture diameter in accordance with the information concerning the form of the image pickup device of the image pickup unit that is obtained by the transmission, and

said controller transmits information representing a warning to the image pickup apparatus via the contacts when the image pickup mode obtained by the transmission is an image pickup mode of arbitrarily changing an aperture value or shutter speed, and when the aperture value or shutter speed with which an aperture diameter becomes smaller than the changed set value of the minimum aperture diameter is set.

39. An apparatus according to claim 38, wherein the image pickup apparatus includes a display, and causes the display to display a warning message when receiving the information representing the warning from the lens apparatus.

40. An apparatus according to claim 38, wherein the information concerning the form of the image pickup device includes information concerning a pixel pitch of each pixel of the image pickup device.

41. An apparatus according to claim 38, wherein the information concerning the form of the image pickup

device includes at least one information out of the number of pixels of the image pickup device, a pixel pitch of each pixel, and an aperture value set in accordance with the pixel pitch.